RF940U
Wireless Passive Infrared Detector
With Pet Immunity
Installation Instructions

1.0   Description

The RF940U is a high performance Wireless Passive Infrared (PIR) Motion Sensor which uses advanced signal processing to provide outstanding catch performance and unsurpassed false alarm immunity. It is designed to detect movement in the interior of a structure by sensing the Infrared energy emitted from the human body as it moves across the sensor's field of view. When motion is detected, the unit sends an alarm signal to the Control Panel. With Bosch Security Systems' Pet Friendly® pet immunity, the RF940U does not detect a dog up to 13.6 kg (30 lbs.), two cats, or numerous rodents.

2.0   Specifications

- **Detection Range:** 12.2 m x 12.2 m (40 ft. x 40 ft.) with look-down zone
- **Mounting Height:** 2.1 m to 2.7 m. (7 ft. to 9 ft.)
- **Input Power:**   Provided by an internal 3 V battery. 3.3 VDC to 2.5 VDC operating voltage, <25µA nominal current (PIR only). Battery types: DL123A, CR123
- **Tamper:**   Wall and cover tampers
- **Temperature:**   0°C to +49°C (+32°F to +120°F) operating temperature. Dynamic temperature compensation in the operating range.
- **Humidity:**   0% to 85% non-condensing
- **Dimensions:**   11.4 cm x 6.4 cm x 4.1 cm (4.5 in. x 2.5 in. x 1.6 in.)
  (HxWxD)

- **RFI Immunity:**   Greater than 30 v/m 26 MHz to 1 GHz
- **Options:** B335 Swivel Mounting Bracket and B338 Ceiling Mount Bracket. Using brackets may decrease the PIR range and increase dead zones.
- **Transmitter Interface:**
  - **Recommended End of Battery Signaling:** 2.5 VDC
  - **Alarm and Tamper Outputs:** Active State, High Impedance Tri-State. Inactive State, 1 mA Current Sink. V_{out} Low = 0.25 VDC @ 1 mA
  - **Minimum Alarm Output Time:** 8 seconds (4 seconds Walk Test Mode)
  - **Minimum Tamper Output Time:** 4 seconds
  - **Alarm Lockout Time:** 3 minutes
  - **Walk Test Mode:** 90 seconds, retriggerable
- **Reading Bosch Security Systems, Inc. Product Date Codes**

For Product Date Code information, refer to the Bosch Security Systems, Inc. Web site at: http://www.boschsecurity.com/datecodes/
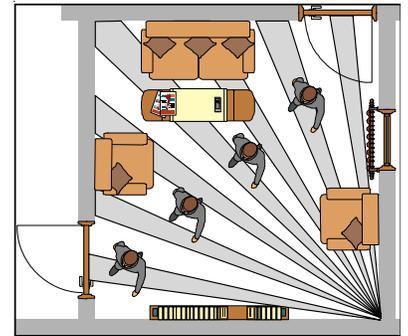
3.0   Installation

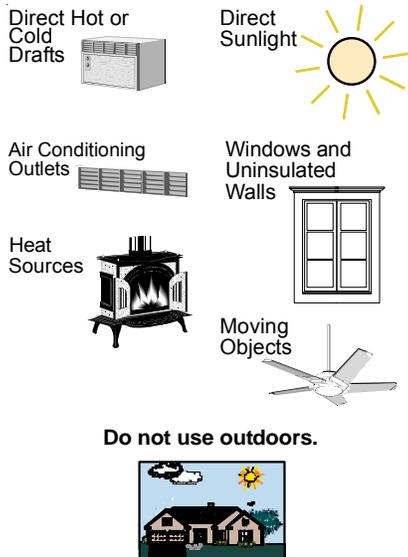**Step 1.   Remove the cover** using a small flat-blade screwdriver.
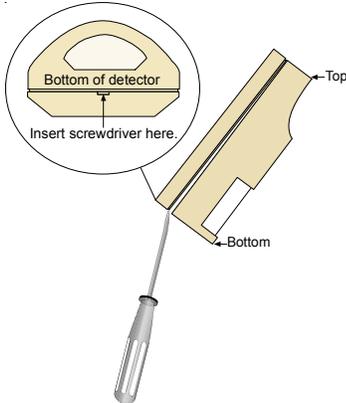
Step 2.   Press the locking tab toward the side of the baseplate and lift out the board.
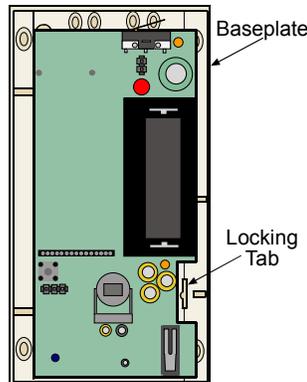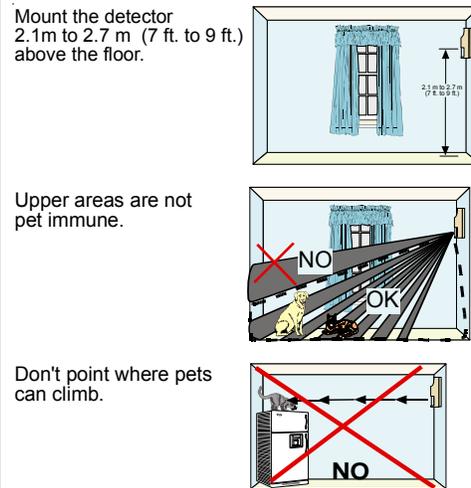

Step 3.   Select a mounting location. Mount the sensor where an intruder will most likely cross through the coverage pattern.
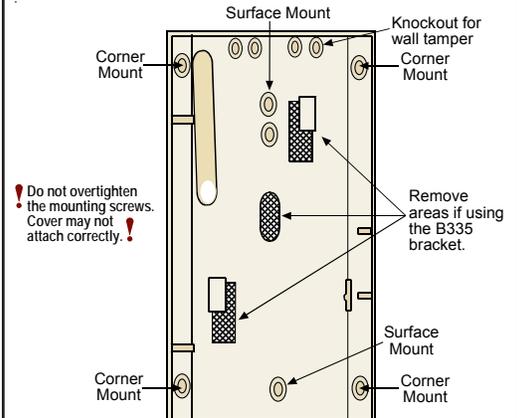

Avoid pointing the detector at:

Direct Hot or Cold Drafts

Direct Sunlight

Air Conditioning Outlets

Windows and Uninsulated Walls

Heat Sources

Moving Objects

Do not use outdoors.

Observe mounting recommendations.

Mount the detector 2.1m to 2.7 m (7 ft. to 9 ft.) above the floor.

Upper areas are not pet immune.

NO   OK

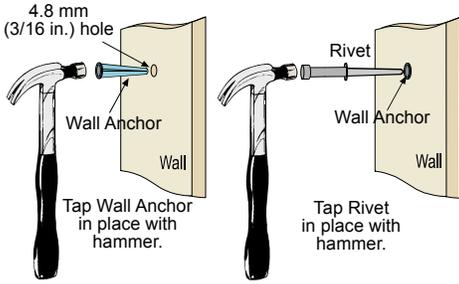Don't point where pets can climb.

NO

Step 4.   Use knockouts to mount the detector with at least two screws to wall or corner. Remove shaded areas in the baseplate if using the B335 Swivel Mount Bracket.

Step 5.   If using the wall tamper, remove the knockout and go to Step 6. If the tamper is not used, go to Step 7.
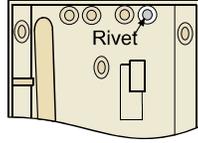
Surface Mount

Knockout for wall tamper

Corner Mount

Corner Mount

Do not overtighten the mounting screws. Cover may not attach correctly.

Remove areas if using the B335 bracket.

Surface Mount

Corner Mount

Corner Mount


BOSCH

Step 6.   If the wall tamper is used:

a. Remove the wall tamper knockout as shown in Step 5.

b. Using the detector base as a guide, drill a 4.8 mm (3/16 in.) hole into the wall.

c. Insert the wall anchor into the hole and tap gently into place. Then place the rivet into the anchor and tap into place.

4.8 mm (3/16 in.) hole

Rivet

Wall Anchor

Wall Anchor

Wall

Wall

Tap Wall Anchor in place with hammer.

Tap Rivet in place with hammer.

d. When mounting the base, make sure the rivet protrudes through the correct hole.

Rivet

e. When mounting the circuit board, the rivet must be over the Tamper Switch Arm.

Switch Arm

Tamper Switch   Rivet
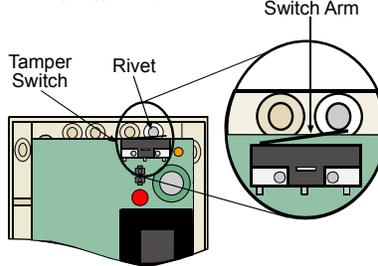
Step 7.   Select the Wall Tamper Jumper.

**Step 8.   Snap the board into the clip** so the notch aligns with the tab on the clip.

Step 9.   Remove the pull tab to energize the detector.

Wall Tamper Enabled

Wall Tamper Disabled

No Jumpers

BATTERY

Pull Tab

Locking Tab
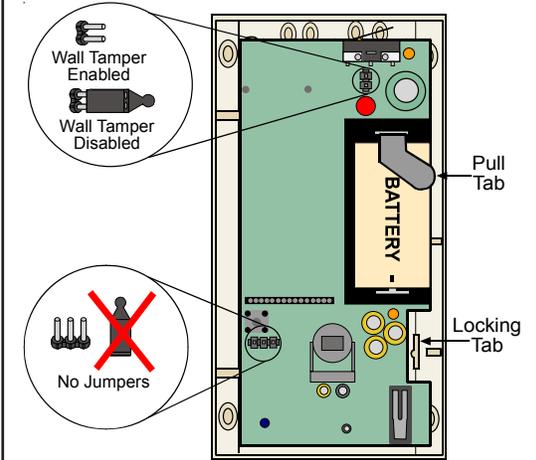
4.0   Walk Test

Perform the Walk Test at the time of installation and annually thereafter.

a. Remove and replace the detector cover to enable the LED and place the detector in Walk Test Mode for 90 seconds. If motion is detected, the detector remains in Walk Test Mode until a 90-second quiet period (no motion detected) occurs.

b. Walk test **across** the coverage pattern as shown in the diagram. The edge of the coverage is determined by activation of the LED.

c. Walk test the unit from both directions to determine the boundaries.

d. If the desired range **cannot** be achieved, make sure the board is properly positioned on the baseplate. Try angling the unit up or down when using the optional swivel mount.
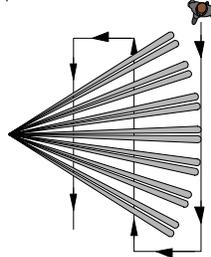
The RF940U infrared detector contains an environmental stabilization circuit that requires approximately 3 minutes after initial power-up to warm up. During this time, the detector LED blinks once per second and the detector does not respond to any movement. After warm up, the detector must not see any movement for 2 seconds to complete stabilization. Rapid LED flash indicates Walk Test Mode is about to end unless an alarm occurs.

5.0   Look-Down Zone

For non-pet applications only.

If look-down is desired, peel away the mask to enable the Look-Down Zone. **Do not remove the clear plastic lens.**
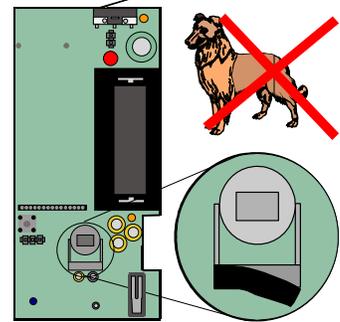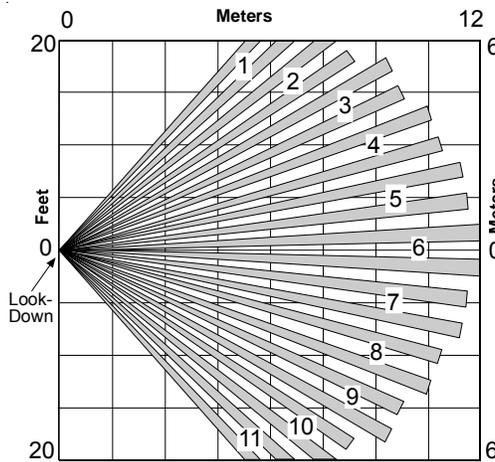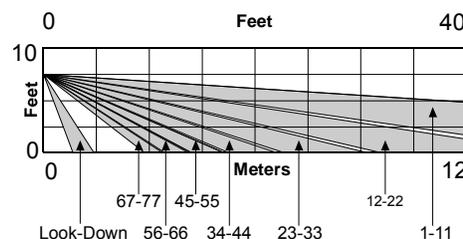

6.0   Coverage Patterns

Although generally not required, masking may be desired to eliminate potential false alarm sources by blocking individual zones (1 through 77 in the zone pattern), or to customize the detection area.

The appropriate lens areas to be masked can be derived from the lens diagram. For example, covering the shaded area in the lens diagram would block zones 5, 16, 27, 38, 49, 60, and 71 (i.e., one group of vertically layered zones).
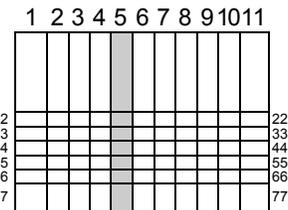
Use an opaque material such as electrical tape for masking.

Meters
0   12

Feet
Look-Down

Meters

Zone Pattern (top view)

1 2 3 4 5 6 7 8 9 10 11

12										22
23										33
34										44
45										55
56										66
67										77

Lens Diagram (inside view)

Feet
10   3

Meters

Zone Pattern (side view)

Meters
0   12

Look-Down   56-66   34-44   23-33   1-11
        67-77   45-55

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3/11
RF940U Installation Instructions
P/N: F01U070611-07   Page 2